

**DEFOLIATION OF WILLOW TREES IN NORTHAMPTONSHIRE
BY WILLOW ERMINE MOTH, *YPONOMEUTA RORRELLA* HÜBN.
(LEP.: YPONOMEUTIDAE)**

SAM CHESSER

End House, Riverside Close, Oundle, Peterborough.

DURING 1988 and 1989 a plantation of willows (*Salix alba serotina*), grown to provide wood for cricket bats, has been extensively defoliated by the larvae of willow ermine moth. Over 95% of the leaves of many of the trees was destroyed, and the trunks of the trees had a ghostly white appearance because they were encased in silk. This silk extended over the nettles and grass at the base of the trees enclosing swarms each of several hundred larvae.

The plantation is about nine hectares in area and is beside the River Nene between Oundle and Barnwell in the East Midlands (map reference TL 048868). A thousand willows have been planted there since 1968 and are now being harvested for making cricket bats. In the years since 1968 a few have been felled and replaced with small trees.

Willow ermine moths lay their eggs in late July and early August in clusters covered by silk on the branches of the tree. The eggs are said to hatch in September but I did not find larvae until they emerged from the silk covering in April. They then climb up the twigs in groups and spin a dense network of silk within the bud. They eat the leaves from the centre outwards, and as they eat they secrete silk so that as they move to a new food source the "tent" moves with them. One small twig from a three year old tree, containing about a fiftieth of the total leaf area of the tree, contained 526 larvae. In the quest for food the larvae move down the trunk and the silk comes to envelope the whole tree. In the last ten days of June the larvae stop feeding and mass beneath the main branches in tents containing several hundred larvae — so many that sometimes the silk breaks and the larvae fall to the ground. Pupation takes place inside the tent and adults begin to emerge in the third week of July. Though completely defoliated the trees soon come into leaf again once the larvae have pupated.

The infestation was first noticed in July 1988 and was even more severe in 1989 when over 90% of the trees were affected and many were totally defoliated. I am grateful to Mr T.G. Winter of the Forestry Commission Research Station at Alice Holt for the comment that he has found very little in the British literature on this insect, and for references of its occurrence in the Ukraine and in Iran. Mr Nicholas Wright of Great Leighs in Essex, who supplies and harvests the trees, has told me that he knows of one previous outbreak in Britain, in Bedfordshire about thirty-five years ago.

There appear to be few natural controlling agents. The larvae are eaten

by blackbirds and by long-tailed tits, but these make no impact on the numbers of larvae present. A parasitic ichneumon was found, but less than one per cent of pupae were parasitised. Karasev, V.S. (1968) has recorded severe infestations by willow ermine moth in the Southern Ukraine, and he established that in 1966-67 a sum of effective temperatures of 235 day-degrees C was necessary for larval development in spring. In another paper (Karasev, V.S. 1968) he describes high mortality of larvae in the field when sprayed in May with spores of *Bacillus thuringiensis* var *galleriae*. Tereshchenko, V.E. (1968) considers that the parasite *Ageniaspis fuscicollis* (Dalm.) may be a good means of control.

The source of the infestation remains a mystery, although Emmet (1990) suggests it is a scarce resident whose numbers are re-enforced by immigration. The warm winters of 1988 and 1989 have probably contributed to the severity of the outbreak. It is disturbing in 1989 to find the moths on other species of willow outside the plantation and at least a kilometre from it.

Acknowledgements

I am grateful to Mr V. Vinson for permission to work on the Barnwell Estate, and to Mr I.F. Thomas for help with the preparation of these notes. Mr Winter's kind assistance with the references has already been recorded.

References

- Emmet, A.M., 1990. The status of *Yponomeuta evonymella* L. and *Y. rorrella* Hübn. (Lep.: Yponomeutidae) in Southern England. *Entomologist's Rec. J. Var.* **102**: 65-69.
- Karasev, V.S., 1968 (On the biology and distribution of *Hyponomeuta rorrella* in the south of the Ukraine). *Zoologicheskii Zhurnal* **47** (12): 1862-1864.
- , 1968. (Biological control of the Willow Ermine Moth). *Zashchita Rasenii.* **13** (11): 44.
- Tereshchenko, V.E., 1968. (Biological control of the Willow Ermine Moth.) *Ibid.* 44-45.

Lepidoptera new to Buckingham Palace Garden in 1989

Monitoring of the butterfly and moth fauna of Buckingham Palace Garden, which began in 1960 by gracious permission of H.M. the Queen, was continued in 1989 from May until November. Mr David Carter of the Natural History Museum, South Kensington, was granted permission to join me and we were privileged to visit the garden by day. A mercury vapour light trap was set at the western side of the lake and, by arrangement with Mr T.Deighton, head gardener, was switched on when nights seemed promising for moths.

The prolonged periods of sunshine and hot dry weather, for which the 1989 season was remarkable, favoured butterflies and provided seemingly optimal night conditions for moths. The Holly Blue (*Celastrina argiolus*)